

Exhibit A

Chemical Compositions and International Designations / 427

6181 = AlSiMg0.8

6063 = AlMg0.7Si

The chemical symbols for addition elements should be limited to four:

6463 = AlMg0.7Si(B)

7050 = AlZn6CuMgZr

6063A = AlMg0.7Si(A)

If an alloy cannot otherwise be distinguished, a suffix in parentheses is used:

Note that suffixes (A), (B), and so on should not be confused with suffixes of the Aluminum Association.

Table 4 cross references ISO designations with equivalent or similar AA alloy designations. Also included in this table are cross-referenced alloys listed in Austrian, Canadian, French, German, British, Italian, Spanish, and Swiss standards. Additional information is included in the "Registration Record of International Alloy Designations and Chemical Composition Limits for Wrought Aluminum and Wrought Aluminum Alloys" (commonly referred to as the blue sheets) published by the Aluminum Association.

Table 1 Composition limits for wrought aluminum and aluminum alloys

AA No.	Composition, wt%											Specified other elements	Ti	Unspecified other elements		Al, min
	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ga	V				Each	Total	
1035	0.35	0.6	0.10	0.05	0.05	...	...	0.10	...	0.05	...	...	0.03	0.03	...	99.35
1040	0.30	0.50	0.10	0.05	0.05	...	...	0.10	...	0.05	...	...	0.03	0.03	...	99.40
1045	0.30	0.45	0.10	0.05	0.05	...	...	0.05	...	0.05	...	...	0.03	0.03	...	99.45
1050	0.25	0.40	0.05	0.05	0.05	...	...	0.05	...	0.05	...	...	0.03	0.03	...	99.50
1060	0.25	0.35	0.05	0.03	0.03	...	...	0.05	...	0.05	...	...	0.03	0.03	...	99.60
1065	0.25	0.30	0.05	0.03	0.03	...	...	0.05	...	0.05	...	...	0.03	0.03	...	99.65
1070	0.20	0.25	0.04	0.03	0.03	...	...	0.04	...	0.05	...	...	0.03	0.03	...	99.70
1080	0.15	0.15	0.03	0.02	0.02	...	...	0.03	0.03	0.05	...	...	0.03	0.02	...	99.80
1085	0.10	0.12	0.03	0.02	0.02	...	...	0.03	0.03	0.05	...	...	0.02	0.01	...	99.85
1090	0.07	0.07	0.02	0.01	0.01	...	...	0.03	0.03	0.05	...	...	0.01	0.01	...	99.90
1100	0.95 Si + Fe		0.05-0.20	0.05	...	...	...	0.10	...	...	(a)	...	...	0.05	0.15	99.0
1200	1.00 Si + Fe		0.05	0.05	...	...	...	0.10	...	...	...	...	0.05	0.05	0.15	99.0
1230	0.70 Si + Fe		0.10	0.05	0.05	...	...	0.10	...	0.05	...	...	0.03	0.03	...	99.30
1135	0.60 Si + Fe		0.05-0.20	0.04	0.05	...	...	0.10	...	0.05	...	...	0.03	0.03	...	99.35
1235	0.65 Si + Fe		0.05	0.05	0.05	...	...	0.10	...	0.05	...	...	0.06	0.03	...	99.35
1435	0.15	0.30-0.50	0.02	0.05	0.05	...	...	0.10	...	0.05	...	...	0.03	0.03	...	99.35
1145	0.55 Si + Fe		0.05	0.05	0.05	...	...	0.05	...	0.05	...	...	0.03	0.03	...	99.45
1345	0.30	0.40	0.10	0.05	0.05	...	...	0.05	...	0.05	...	...	0.03	0.03	...	99.45
1350	0.10	0.40	0.05	0.01	...	0.01	...	0.05	0.03	...	0.05 B, 0.02 V + Ti	...	0.03	0.03	0.10	99.50
1170	0.30 Si + Fe		0.03	0.03	0.02	0.03	...	0.04	...	0.05	...	...	0.03	0.03	...	99.70
1175	0.15 Si + Fe		0.10	0.02	0.02	...	...	0.04	0.03	0.05	...	...	0.02	0.02	...	99.75
1180	0.09	0.09	0.01	0.02	0.02	...	...	0.03	0.03	0.05	...	...	0.02	0.02	...	99.80
1185	0.15 Si + Fe		0.01	0.02	0.02	...	...	0.03	0.03	0.05	...	...	0.02	0.01	...	99.85
1285	0.08(b)	0.08(b)	0.02	0.01	0.01	...	...	0.03	0.03	0.05	...	...	0.01	0.01	...	99.85
1185	0.06	0.06	0.005	0.01	0.01	...	...	0.03	0.03	0.05	(a)	...	0.01	0.01	...	99.88
1199	0.006	0.006	0.006	0.002	0.006	...	...	0.006	0.005	0.005	...	...	0.002	0.002	...	99.99
2008	0.50-0.8	0.10	0.7-1.1	0.30	0.25-0.50	0.10	...	0.25	...	0.05	...	...	0.10	0.05	0.15	bal
2009	0.25	0.05	3.2-4.4	...	1.0-1.6	...	...	0.10	...	...	(c)	...	...	0.05	0.15	bal
2010	0.50	0.50	0.7-1.3	0.10-0.40	0.40-1.0	0.15	...	0.30	...	...	...	...	...	0.05	0.15	bal
2011	0.40	0.7	5.0-6.0	...	...	...	...	0.30	...	...	(d)	...	...	0.05	0.15	bal
2111	0.40	0.7	5.0-6.0	...	...	...	...	0.30	...	...	(e)	...	...	0.05	0.15	bal
2012	0.40	0.7	4.0-5.5	...	...	...	...	0.30	...	...	(f)	...	...	0.05	0.15	bal
2014	0.50-1.2	0.7	3.9-5.0	0.40-1.2	0.20-0.8	0.10	...	0.25	...	...	(g)	...	0.15	0.05	0.15	bal
2214	0.50-1.2	0.30	3.9-5.0	0.40-1.2	0.20-0.8	0.10	...	0.25	...	...	(g)	...	0.15	0.05	0.15	bal
2017	0.20-0.8	0.7	3.5-4.5	0.40-1.0	0.40-0.8	0.10	...	0.25	...	...	(g)	...	...	0.05	0.15	bal
2117	0.8	0.7	2.2-3.0	0.20	0.20-0.50	0.10	...	0.25	...	...	...	...	...	0.05	0.15	bal
2018	0.9	1.0	3.5-4.5	0.20	0.45-0.9	0.10	1.7-2.3	0.25	...	...	...	...	...	0.05	0.15	bal
2218	0.9	1.0	3.5-4.5	0.20	1.2-1.8	0.10	1.7-2.3	0.25	...	...	...	...	0.04-0.10	0.05	0.15	bal
2618	0.10-0.25	0.9-1.3	1.9-2.7	...	1.3-1.8	...	0.9-1.2	0.10	...	...	...	...	...	0.05	0.15	bal
2219	0.20	0.30	5.8-6.8	0.20-0.40	0.02	...	...	0.10	...	0.05-0.15	0.10-0.25 Zr	0.02-0.10	0.05	0.05	0.15	bal
2319	0.20	0.30	5.8-6.8	0.20-0.40	0.02	...	...	0.10	...	0.05-0.15	0.10-0.25 Zr(a)	0.10-0.20	0.05	0.05	0.15	bal
2419	0.15	0.18	5.8-6.8	0.20-0.40	0.02	...	...	0.10	...	0.05-0.15	0.10-0.25 Zr	0.02-0.10	0.05	0.05	0.15	bal
2519	0.25(b)	0.30(b)	5.3-6.4	0.10-0.50	0.50-0.40	...	...	0.10	...	0.05-0.15	0.10-0.25 Zr	0.02-0.10	0.05	0.05	0.15	bal
2024	0.50	0.50	3.8-4.9	0.30-0.9	1.2-1.8	0.10	...	0.25	...	...	(g)	...	0.15	0.05	0.15	bal
2124	0.20	0.30	3.8-4.9	0.30-0.9	1.2-1.8	0.10	...	0.25	...	...	(g)	...	0.15	0.05	0.15	bal
2324	0.12	0.15	3.8-4.4	0.30-0.9	1.2-1.8	0.10	...	0.25	...	...	...	...	0.15	0.05	0.15	bal
2324	0.10	0.12	3.8-4.4	0.30-0.9	1.2-1.8	0.10	...	0.25	...	...	...	...	0.15	0.05	0.15	bal
2025	0.50-1.2	1.0	3.9-5.0	0.40-1.2	0.05	0.10	...	0.25	...	...	...	...	0.15	0.05	0.15	bal

(continued)

(a) 0.0005% max Be for welding electrode and filler wire only. (b) 0.14% max Si + Fe. (c) 0.6% max O. (d) 0.20-0.6% Bi, 0.20-0.5% Pb. (e) 0.20-0.8% Bi, 0.10-0.50% Sn. (f) 0.20-0.7% Bi, 0.20-0.6% Sn. (g) A Zr + Ti limit of 0.20% max can be used with this alloy designation for extruded and forged products only, but only when the supplier and purchaser have mutually so agreed. (h) 0.40% max Si + Fe. (i) 0.005% max Be, 0.20-0.50% O. (j) 1.9-2.6% Li. (k) 1.7-2.3% Li. (l) 0.25-0.6% Ag, 0.7-1.4% Li. (m) 0.25-0.6% Ag, 0.7-1.5% Li. (n) 0.25-0.6% Ag, 0.8-1.2% Li. (o) 0.25-0.6% Ag, 1.3-1.9% Li. (p) 1.2-1.8% Li. (q) 1.3-1.7% Li. (r) 0.6-1.5% Bi, 0.05% max Cd. (s) Formerly inactive alloy 4245 reactivated as 4048. (t) 1.0-1.3% C, 1.2-1.4% Li, 0.20-0.7% O. (u) 0.05-0.50% O. (v) 45-65% of actual Mg. (w) 0.40-0.7% Bi, 0.40-0.7% Pb. (x) 0.10-0.40% Co, 0.05-0.30% O. (y) A Zr + Ti limit of 0.25% max can be used with this alloy designation for extruded and forged products only, but only when the supplier and purchaser have mutually so agreed. (z) 0.20-0.50% O. (aa) 0.001% max B, 0.003% max Cd, 0.001% max Co, 0.008% max Li. (bb) 0.30% max O. (cc) 3.5-4.5% Ce, 0.20-0.50% O. (dd) 0.10-0.50% Bi, 0.10-0.25% Sn. (ee) 0.05-0.20% O. (ff) 1.0% max Si + Fe. (gg) 0.02-0.08% Zr. (hh) 2.2-2.7% Li. Source: Aluminum Association Inc.